IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.	:	10/679,611
Applicant	:	Tapesh Yadav et al.
Filed	:	October 6, 2003
Title	:	PRINTING INKS AND REAGENTS FOR NANOELECTRONICS AND CONSUMER PRODUCTS
Group Art Unit	:	1793
Examiner	:	Lorengo, Jerry A.
Confirmation No.	:	3294
Customer No.	:	24959
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Commissioner for Patents
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REPLY BRIEF UNDER BdR 41

Sir:

This Reply follows the answer mailed September 3, 2008. It is timely as it is filed within the two month period. See BdR 41(a)(1).

Under BdR 47(a)(1), this appeal should be decided on the briefs without an oral hearing. In other words, no Request for Oral hearing accompanies this brief.

Status of claims

Claims 1-16 stand canceled.

Claims 17-41 stand rejected and are the claims on appeal.

Grounds for rejection

I. Whether or not claims 32-33, 38, & 40 are unpatentable as anticipated under § 102(b) by Alexander (US Pat. No. 4,944,985);

II. Whether or not claims 39 & 41 are unpatentable as obvious under § 103(a) over Alexander; and

III. Whether or not claims 17-31 & 34-37 are unpatentable as obvious under § 103(a) over Alexander in view of Craig (US Pat. No. 4,292,029) or Nakayama (US Pat. No. 5,718,047).

Argument

This Reply Brief responds to the Examiner's Answer per BdR 39(a)(1) mailed September 3, 2008. The Answer did not contain a new ground for rejection per BdR 39(a)(2). Moreover, the following arguments are limited to the subject matter in the Examiner's Answer. Thus, no supplemental answer per BdR 43(a)(1) should be permitted.

I. Anticipation Rejection under § 102(b) over Alexander

a. Claims 32-33, 38, & 40

On page 6, the first two full paragraphs of Section I, the Examiner provides introductory remarks. These introductory remarks are irrelevant to the argumentative issues of anticipation. They will not be commented upon.

On page 6, the third and bridging paragraph of Section I, the Examiner cites Alexander, column 13, lines 41-47, column 1, lines 10-12, and column 13, lines 1-15 as anticipating passages. The Examiner's citing unrelated passages and Appellant's arguments in the opening brief, in Section I at pages 9-10, highlight a basic disagreement about the law regarding anticipation. Appellant submits that an anticipatory reference must direct those skilled in the art to the presently claimed invention without any need for picking, choosing, and combining various unrelated disclosures in the reference. *Akzo N.V. v. U.S. Intern. Trade Com'n*, 808 F.2d 1471, 1480, 1 USPQ2d 1241, 1245 (Fed. Cir. 1986), *cert. denied*, 482 U.S. 909 (1987). In *Azko*, for example, the claims recited a process using a 98% solution of sulfuric acid, and the cited reference merely disclosed using a solution of sulfuric acid that was not necessarily a 98% solution of sulfuric acid. *Id.* Because the reference did not necessarily describe an embodiment of the patentee's claimed invention, the reference therefore did not anticipate the patent's claimed process.

A similar case exists here in this appeal, because none of the cited passages necessarily describes an embodiment of the claimed invention. More specifically, the Examiner cited Alexander, column 13, lines 41-47, which reads as follows:

> There are powders which are a product of the processes of this invention which have a core of metal with at least a first layer of another metal plated thereon. For example, in conductive paints, pastes or inks, it is preferable to have a core of one metal e.g., copper or silver, 45 coated with another corrosion resistant metal e.g., gold to achieve good properties.

Conspicuously absent from this passage is any mention of the size of the powders. Yet the rejected claim 32 recites a *domain size less than 250 nm*. Since the passage does not necessarily refer to particles having a *domain size less than 250 nm*, the passage does not describe an embodiment of claim 32, let alone the remaining rejected claims.

Moreover, the Examiner cited Alexander, column 1, lines 10-12, another passage that does not anticipate the rejected claims. It reads as follows:

> The present invention relates most generally to a process for the electroless plating of easily reducible metals onto ultrafine particles, a process for making alloy mixtures using the ultrafine particles having plating thereon and to the unique products produced thereby such as, metal powders of ultrafine colloidal sized particles with cores or centers with a dense and continuous plating of at least one metal and metal articles of manufacture having a plurality of ultrafine particles dispersed substantially evenly through the metal article. Such electroless plating is achieved through careful and accurate control of such parameters as the feed rates of the various solutions, the control of pH of the solution, the temperature, pressure and the rate of agitation of the solution in which the plating is taking place.

Conspicuously absent from this passage is any mention of the size of the powders. Yet the rejected claim 32 recites a *domain size less than 250 nm*. Since the passage does not necessarily refer to particles having a *domain size less than 250 nm*, the passage does not describe an embodiment of claim 32, let alone the remaining rejected claims.

And, the Examiner cited Alexander, column 13, lines 1-15, yet another passage that does not anticipate the rejected claims. It reads as follows:

> Composite powders of copper and zirconia can be made which have exceptional hardness and tensile strength without a substantial loss of dictility or electrical conductivity. One of the characteristics of hard copper made from the composite powders described herein, is that the dispersoid is very uniformly dispersed in the metal matrix. This is one of the reasons for the high level of ductility and fatigue strength that can be achieved by the products described herein. The dispersoid particles in composites which are used for dispersion strengthening or dispersion hardening should be much smaller than those used as extenders. It is preferred that the size be less than 100 nanometers and more preferred less than 25 nanometers. The most preferred range is 5 to 15 nanometers.

Conspicuously absent from this passage is any mention of the size of the resultant composite powders (line 1). In this embodiment, the dispersoid (zirconia) is dispersed in the metal matrix (copper) having undefined dimensions (lines 6-7). As such, even if the dispersoids were small (lines 12-15), the size of the resultant composite powders (line 1), including both the metal matrix and the dispersoids, would not necessarily have a *domain size less than 250 nm.* Since the passage does not necessarily refer to particles having a *domain size less than 250 nm*, the passage does not describe an embodiment of claim 32, let alone the remaining rejected claims.

For the reasons stated here and for those in the brief, this rejection should be reversed in whole.

II. Obviousness Rejection under § 103(a) over Alexander

a. Claims 39 & 41

On page 7, Section II, first full paragraph (including the indented quote), the Examiner provides introductory remarks. These introductory remarks are irrelevant to the argumentative issues of obviousness. They will not be commented upon.

On page 7, Section II, second full paragraph, the Examiner states his disagreement with the Appellant's traversal of his case for anticipation, which forms the basis of the present obviousness rejection. The remarks in the opening brief in Section II at pages 10-11 should overcome the issue of obviousness. For the reasons here and in the brief, this rejection should be reversed in whole.

III. Obviousness (Alexander, in view of Craig or Nakayama)

a. Claims 17-31 & 34-37

On page 7, Section III, first full paragraph, the Examiner provides introductory remarks. The introductory remarks are irrelevant to the argumentative issues of obviousness. But these remarks highlight Appellant's position that Alexander teaches away from at least one of the modifications needed in order to reach an embodiment of the present invention, e.g., modifying Alexander's powders to have, as recited in claim 17, *an aspect ratio greater than one.* See Specification, paragraph 37 for the definition of an *aspect ratio.*

On page 7, Section III, second full paragraph, the Examiner states that Alexander has a preference for spherical particles, i.e., particles with an aspect ratio of 1. Yet the opening brief highlighted Alexander's teaching: "inks require ... substantially spherical particles in order to achieve good performance." Brief, page 12, paragraph starting at line 3 (citations omitted). Modifying Alexander's inks in a manner to make inks containing non-spherical particles would proceed against Alexander's teachings. Thus, Alexander contains a teaching away from the proposed modification.

Neither secondary reference remedies these deficiencies. On page 7, Section III, second full paragraph, the Examiner states that a reasoned explanation for combining the three references is found in the quoted paragraphs on page 9, indented paragraphs. On page 9, second indented paragraph, concerning Craig, column 6, lines 32-52, the Examiner points to a particle size range (5-500 nm) and shapes (whiskers, plates, spheres). Craig's teachings about compositions used in tooth treatments lack a reason for modifying Alexander's inks to contain nonspherical particles. The cited passages read as follows:

> The compositions employed in the present process, as noted above, contain at least about 10% by weight and up to about 90% by weight, and preferably about 70-80% by weight of a finely divided, inert inorganic filler. The filler, which may be in the form of spheres, platelets, fibers, whiskers, or particles of any regular or irregular shape and which preferably is transparent or translucent, may comprise for example, apatite, soda glass, barium glass, borosilicate glass, silica, alumina, quartz, lithium aluminum silicate or the like. Mixtures of more than one filler may be used. The particle size of the filler may range from about 0.005 to about 0.5 μm in the case of microfine silica, to not greater than about 500 μm in the case of irregularly shaped particles. Further, a range of particle sizes may be used. Where the filler is in the form of fibers, the maximum dimension of the fibers preferably is not greater than about 110 μm. On the other hand, where the filler is in the form of spheres, platelets or is irregularly shaped, the maximum dimension of the particles preferably is not greater than about 350 μm. The filler should have a Knoop hardness

Even if the particle size of microfine silica (line 44) may range from about 0.005 to about 0.5 μm, that is not a reason to proceed against Alexander's teachings that "inks require ... substantially spherical particles in order to achieve good performance."

Additionally, on page 9, second indented paragraph, concerning Nakayama, column 5, lines 58-65, the Examiner notes the teachings of shapes of Nakayama's filler particles. Nakayama's teachings about conductive fillers for use in junction boxes lack a reason for modifying Alexander's inks to contain non-spherical particles. The relevant passage of Nakayama reads as follows:

> **The conductive filler can be a metal filler or a carbon filler. The metal filler includes particles, fiber, whisker, or a flake of such metals as gold, silver, nickel, copper, or alloy or oxide thereof. Further, the carbon filler includes a particulate carbon black, fibrous carbon fiber, graphite fiber, carbonized whisker, and flake natural graphite powder. Still further, a carbon filler whose surface is coated with metal, or metal-coated insulation fiber or particles can also be used.**

Even if the carbon filler (line 61) may be coated with metal (line 64) and may range in shape from fibers (line 62), whiskers (line 63), and flakes (line 63), Nakayama never mentions the carbon filler size. Nor do Nakayama's teachings suggest a reason to proceed contrary to

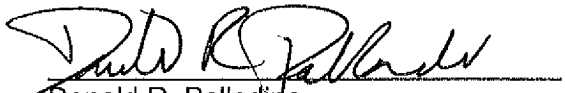
Alexander's teachings that "inks require ... substantially spherical particles in order to achieve good performance."

In short, the record on appeal lacks a reason to combine Alexander's teachings of electroless (Alexander, *passim*) plating and either Craig's compositions used in tooth treatments or Nakayama's conductive fillers used in making junction boxes.

CONCLUSION

For the reasons stated in the present reply and the brief, the Examiner's rejections should be reversed in whole.

Respectfully Submitted,



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